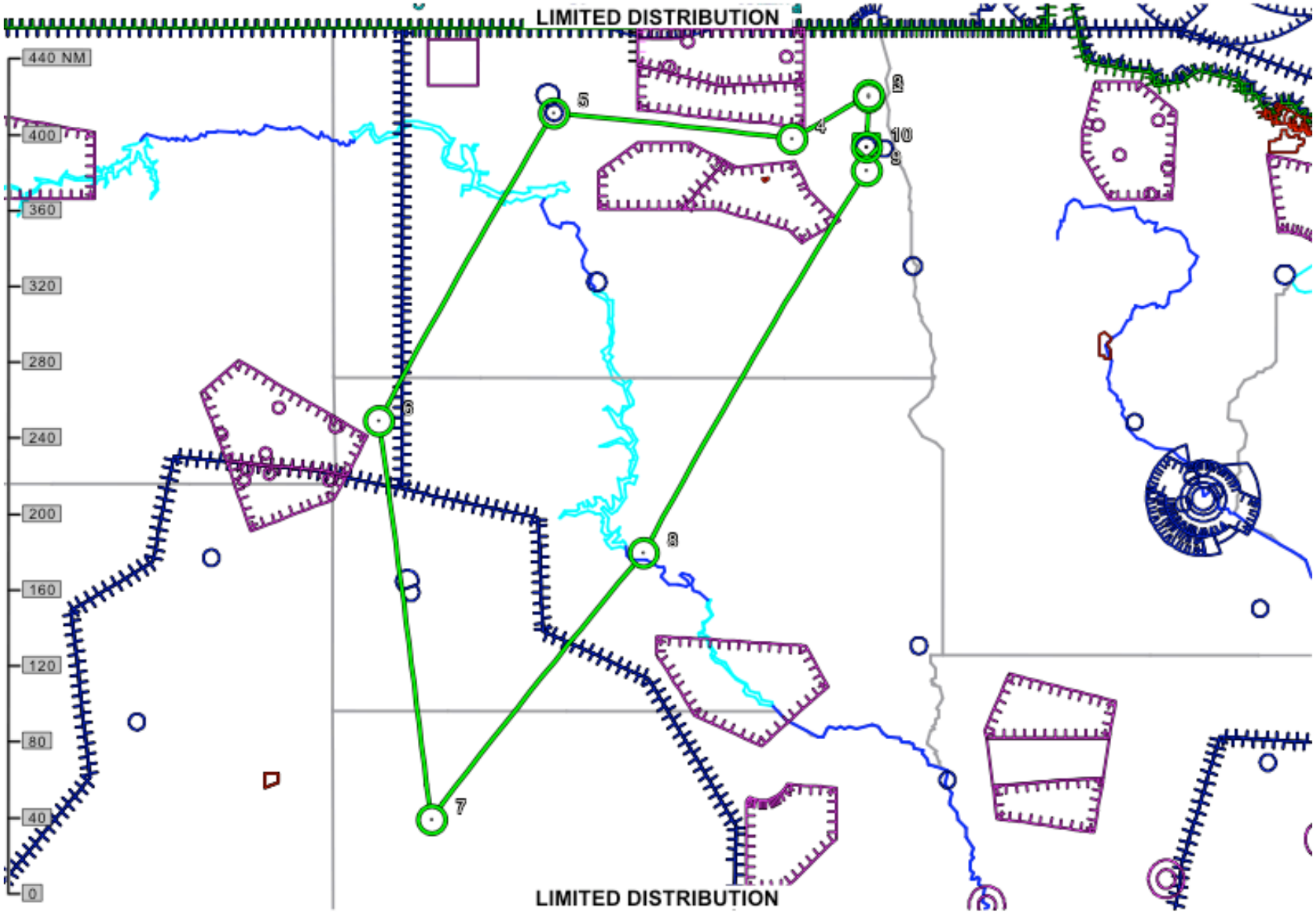
INTEX-B: Test flight 1 (February 22, 2006; Wednesday)

This was the first INTEX-B flight with the main objective of testing instrument performance under a variety of atmospheric and aircraft operational conditions. The basic flight patterns and their location is shown in the slides below. Total flight duration was 3.5 hours with a 6 pm takeoff. We flew up from Grand Forks to 33,000 ft for a long level leg of approximately 90 minutes under night conditions (solar zenith >95°) and then climbed to 39000 ft for high altitude sampling tests. It was possible to test instrument performance from 1000 to 39,000 ft under a variety of aircraft speeds (typically very slow, nominal, and very high) as well as humidity and pollution conditions. At 39,000 ft we sampled the lower stratosphere with ozone exceeding 500 ppb.

Overall results from this test flight were extremely encouraging. A large fraction of the instruments were able to operate normally while others detected minor difficulties that could be fixed before the second test flight. None of the instruments encountered high altitude sampling difficulties and the DC-8 “nominal” speeds (220-440 knots) and standard cabin pressure protocol worked very well for all PIs. The GT-LIF instrument had laser problems and would require additional work on the ground. AROTAL also was only partially successful in aligning their lasers in flight. Peroxide instrument has developed some leaks that are difficult to detect. It is likely that these 3 instruments will be fully operational only after we have landed in Houston. Overall, this was a very successful test flight and went exactly according to plan.

The next test flight is scheduled for the 24th of February. This flight will start at Grand Forks and terminate at Ellington Field in Houston. The early change in location is necessitated by serious hanger issues at Grand Forks.

The navigational data are available at URL: http://www.dfrc.nasa.gov/Research/AirSci/DC-8/ICATS/index.html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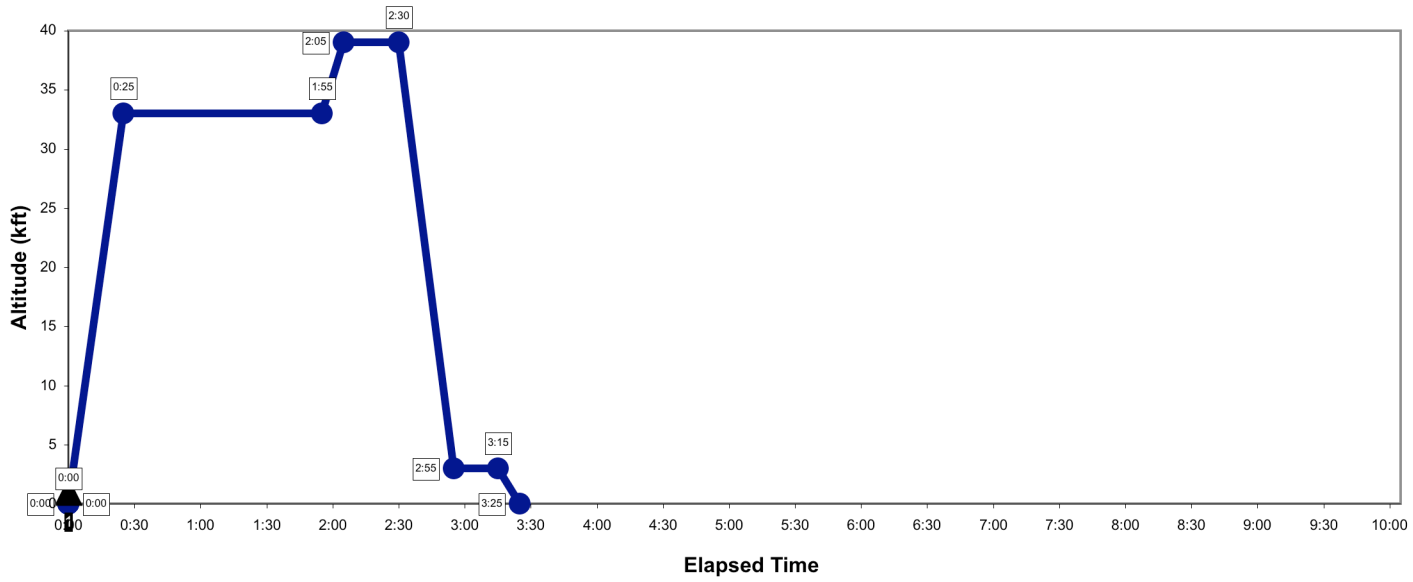

Note: In-Progress profiling in **Blue**; Spirals in **Red**; Way points annotated with triangles (▲).